

Colorado

Stream Lines

QUARTERLY NEWSLETTER OF THE OFFICE OF THE STATE ENGINEER
COLORADO DIVISION OF WATER RESOURCES

VOLUME III, NUMBER 2

SUMMER 1990

COLORADO DIVISION OF WATER RESOURCES ENTERS THE WORLD OF AUTOMATED COMMUNICATIONS

By
Tony Martinez
Front Desk Receptionist,
Denver Office

"Hello, this is Tony Martinez,
can I help you?"

This is what you will hear after a long introduction which you will receive from our end of the phone line. I have a new assistant whose name is MAX. MAX is an Automated Telephone Attendant. The system will greet you, give you options allowing you to transfer yourself, and put you on hold if the line is busy. I apologize for not having soothing music for you to hear while you are waiting for your call to be answered, but please do wait for us to answer your call. It is important to us to be of service to you.

In the past there were probably occasions when one of you would call and the phone would ring and ring and ring. Well, MAX will now answer your call promptly. Before, I had 5 lines to answer, and being as busy as beavers building a dam here at the Front Desk, I thought it might be a good idea if I requested a little help. So that is how MAX and I became friends.

Now I realize that people in general are not crazy about listening to a machine tell them what to do. However, it is 1990 and the demand for water is increasing, along with the population, on a daily basis. Therefore, the choice to change to automated answering is one I contemplated for some time. The result, I hope all of you will not be too annoyed by this new method of communication.

Please remember it is always a great pleasure to be of

service to each and every one of you!!!!

WATER RIGHTS ABANDONMENT

As required by statute, a list of water rights proposed for abandonment has been developed by each Division Engineer. The portion of each list appropriate to each county has been published in a county newspaper, and a list has been mailed to each owner or last known owner or claimant of each water right on the list. Division abandonment lists may be obtained from the DWR office for \$10.

Any person wishing to protest the inclusion of a water right in the abandonment list must submit a written protest to the appropriate Division Engineer no later than July 1, 1991. Thereafter, a revised list will be developed and submitted to the Water Court for further consideration.

COLORADO WATER SUPPLY CONDITIONS IMPROVE

By John Kaliszewski

Significant precipitation during July dramatically improved water supply conditions statewide. Rain was especially welcome in the northeast, south central, north central, and west central sections of the state where precipitation averaged 156% of normal with a high of 187% in the Arkansas basin and a low of 140% of normal in the Yampa/White basin. In contrast, June statewide precipitation was only 41% of normal. The July rains reduced irrigation demands and in some basins provided for storage of excess flows. Irrigation is the largest user of water in the state and accounts for 88% of the total statewide water consumption.

Reservoir storage has been drawn down considerably in the last 12 months; however, it still remains normal to above normal statewide when compared to historic reservoir storage

levels. The Gunnison and Colorado river basins do have below normal storage conditions. The consumption of reservoir carry-over storage this year will impact conditions next year if the 1991 runoff is below normal and storage cannot be replaced. The greatest impact will be on recreational uses of water as municipal and irrigation demands increase.

The Surface Water Supply Index (SWSI) developed by the State Engineer's Office is used as an indicator of water supply conditions in the state. It is based on reservoir storage, streamflow, and precipitation for the summer period of May 1 through December 1. During this time, streamflow is the primary component in each basin. The following SWSI values were computed for each of the seven basins on August 1, 1990.

-4	-3	-2	-1	0	1	2	3	4
Severe Drought	Moderate Drought		Below Normal	Near Normal	Above Normal		Abundant Supply	

BASIN ASSESSMENTS

SOUTH PLATTE

Current conditions indicate that this basin has an above normal water supply and is in the best condition statewide. Northern tributaries have adequate supplies; however, some southern areas, including the South Park and Tarryall drainages, have less than adequate supplies. Irrigation demands are likely to remain below normal but municipal supplies from the Upper South Platte basin will be short. Public use should be relatively normal.

ARKANSAS

The Arkansas basin has near normal conditions thanks to above average precipitation recorded during the month of July. Pueblo, for example, received 5.14 inches of rain for

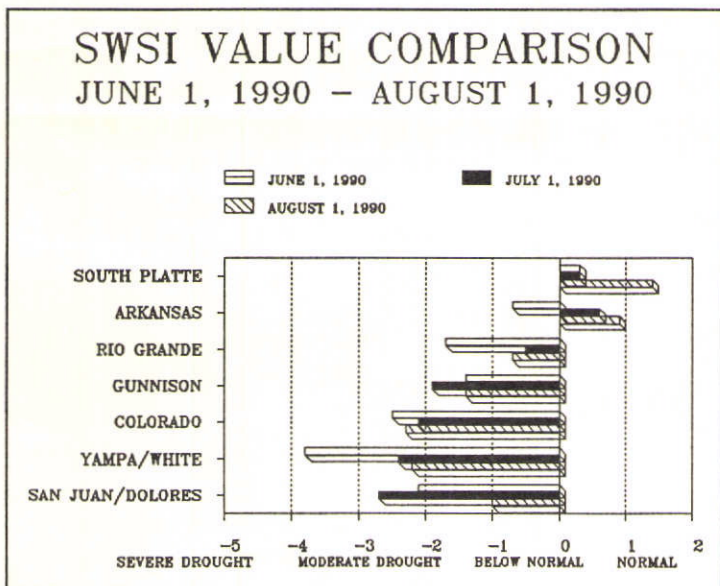
the month compared to the July average of 1.81 inches. Reduced irrigation demands will likely continue.

RIO GRANDE

Precipitation, measuring 154% of normal for the month of July, provided temporary relief for the basin; however, current conditions are still below normal. Surface flows continue to decrease and ground water levels in the unconfined aquifer continue to drop. Available surface flows are being used to satisfy senior irrigation rights and the Rio Grande Compact obligations. Recreational use has been diminished at the Rio Grande Reservoir with only the conservation pool remaining.

GUNNISON

Conditions improved slightly, but drought, especially in the southern Grand Mesa and upper reaches of the Uncompaghre drainage areas, remains the norm. Water supplies will remain short throughout most of the basin.

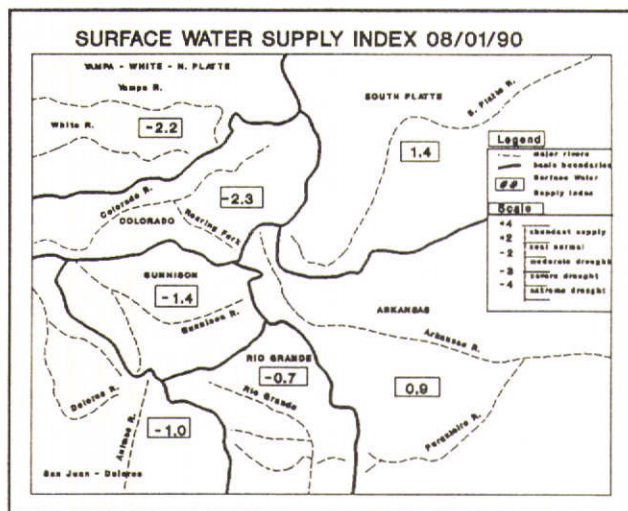


COLORADO

Moderate drought stages continue. Although July precipitation was 158% of normal, the basin tributary flow is critically low, with conditions the worst west and south of Glenwood Springs. Decreasing flow in the Colorado River has placed a strong demand on storage releases from Green Mountain Reservoir to augment flows. On July 27, 1990, a "river call" was placed on the river to satisfy the Shoshone Power Plant right and on July 30, 1990, the "Cameo call" was placed on the river.

YAMPA/WHITE

Moderate drought status continues here also. Water supplies in the North Platte, Yampa, Green and White river basins continue to show improvement due to above normal precipitation. Decreasing streamflows will impact water recreational uses such as rafting.



SAN JUAN/DOLORES

Basin-wide conditions improved somewhat, but water supplies will remain short throughout the year. The SWSI value of -1.0 indicates that conditions are below normal. Precipitation was 154% of normal for the month of July. Impacts on recreational uses of water are likely to develop if normal to below normal snowpack occurs this winter.

COURT NEWS

By Jody Grantham

The Colorado Supreme Court recently addressed the subject of exchanges in The City of Florence et al. v. The Board of Waterworks of Pueblo, 88SA117 (June 11, 1990). This case involved an appeal of the lower court decree that held the retained jurisdiction provision of 37-92-304(6) C.R.S. (1989 Supp.) to be inapplicable because Pueblo's exchange plan, in which Pueblo claimed 3.46 cfs absolute and 76.54 conditional via exchange (releases of transbasin diversions through treatment plants in Pueblo while storing native waters in upstream reservoirs), was not a change of water right or a plan for augmentation. The Supreme Court upheld the lower court's decision.

In doing so, the Court gave some interesting insight into exchanges, particularly in noting the legislative intent of 37-92-302(1)(a), 37-92-305(10) and 37-92-304(6), C.R.S. (1989 Supp.). The Court stated that the legislature distinguished proposed and existing exchanges from plans for augmentation when it amended the jurisdiction of the water court in 37-92-302(1)(a) in 1981 to include "approval of a

proposed or existing exchange of water under sections 37-90-120 or 37-83-104." This amendment evidenced an intent to allow for the adjudication of an exchange of water independently from plans for augmentation. To quote the Court, "[i]f exchanges were not considered a separate claim, the amendment would be meaningless."

The Court then went on to note that later the same year the legislature added section 37-92-305(10) and amended 37-92-304(6). Section 37-92-305(10) applies only to exchanges and preserves the original date of priority for existing exchanges that are adjudicated, while 37-92-304(6) requires retained jurisdiction in cases involving augmentation or a change of water right. The significance noted was that exchanges were not included in 37-92-304(6) but were addressed specifically in 37-92-305(10) and 302(1)(a).

Thus, the Court found that, "...a proposed or existing water exchange is an independent claim, not subject to the retained jurisdiction provision

of section 304(6), unless it occurs as part of a plan for augmentation." Further, the Court stated, an "...exchange plan is not part of a plan for augmentation..." unless it is part of "a detailed program to increase the supply of water available for beneficial use in a division."

In Pueblo's case, the waters involved in the exchange were foreign waters and therefore, this author believes, the exchange itself was construed under the guidelines set forth in 37-82-106, C.R.S. (1989 Supp.), which states in part:

"(1) Whenever an appropriation has lawfully introduced foreign water into a stream system from an unconnected stream system, such appropriator may make a succession of uses of such water by exchange or otherwise to the extent that its volume can be distinguished from the volume of the streams into which it is introduced...

(2) To the extent that there exists a right to make a succession of uses of foreign, ... water, such right is personal to the developer.... Such water, when released from the dominion of the user, becomes a part of the natural surface stream where released, subject to water rights on such stream in the order of priority, but nothing in this subsection (2) shall affect the rights of the developer ... with respect to such foreign, ... water, nor shall dominion over such water be lost to the owner ... by reason of use of a natural watercourse in the process of carrying such water to the place of its use..."

The Court noted that in effect an "increase" of the water available to Pueblo would occur and "...such use of foreign water would be appropriate...and would not involve a plan for augmentation" in that downstream users still receive their full amount of water they are

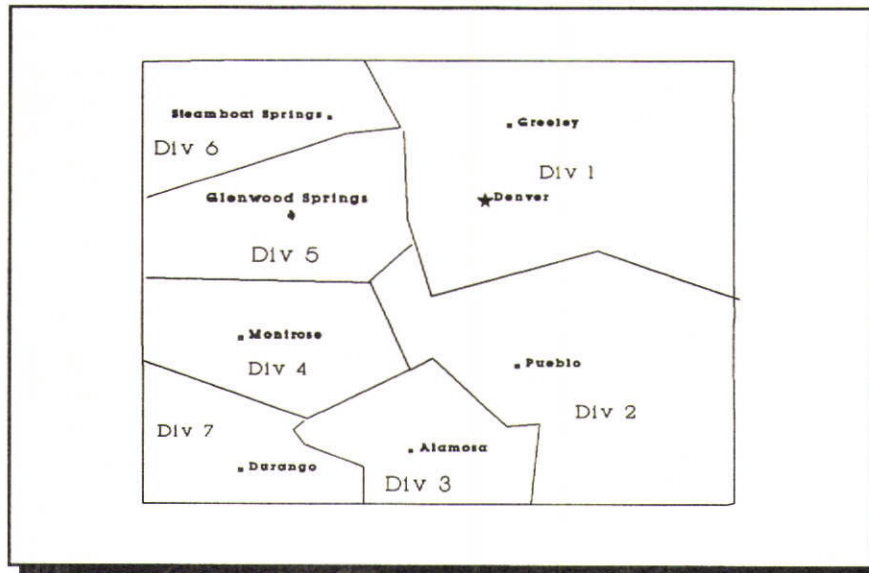
entitled to while Pueblo has merely increased its water supply by more efficiently controlling its foreign supply. "This is an appropriate use of foreign water and does not constitute a plan for augmentation."

Also, the Court recognized the lower court decree in its remark that, "[f]inally, the exchange statute itself,...urges recognition of exchanges "to the fullest extent possible..." while adhering to the general law of the land favoring maximum beneficial use.

NEW PUBLICATION GIVES STATEWIDE
DISTRICT WATER COURT NEWS ON A
QUARTERLY BASIS

In the Spring of 1990, the Natural Resources Law Society began publishing the *Water Court Reporter*, a quarterly newsletter that covers the actions of the water courts in Colorado. The publication is to provide water adjudication information at the district level to members of the water community, while exposing law students to the water court system. The newsletter also summarizes and compiles select court decisions and rulings of the referee from all seven of Colorado's water divisions and will also include articles by prominent water oriented individuals.

The editors of *STREAM LINES*, after reviewing the first edition of the *Water Court Reporter*, found it to be very useful and informative, and recommend it as must reading for those in the water community. Should you wish to obtain further information with regards to this publication, please drop a line to: *Water Court Reporter*, 7039 E. 18th Ave., Denver, Colorado 80220, or call (303) 394-2462.



WATER DIVISION NO. 7
 by Daries C. (Chuck) Lile
 Division Engineer

Water Division No. 7 is located in the southwest corner of the state of Colorado. It is comprised of the San Juan River and its tributaries, as well as the Dolores River and tributaries south of Township 45 North, N.M.P.M. The Division office is located in Durango, with suboffices in Pagosa Springs and Cortez.

The geography is diverse and includes the San Juan Mountain range, plateaus and high plains. The region's precipitation is also variable, from an average of more than 45 inches of precipitation on Wolf Creek Pass, to less than 13 inches in the Four Corners area.

There is a variety of water uses within the basin, the primary being irrigation. There are 2,000,000 acres of irrigated lands, with diversion to agriculture of 900,000 acre-feet annually. There are also several transmountain diversions to the Rio Grande and Gunnison basins. Ground water is not a major supplier of water since there are no large aquifers in the area. The primary use of ground water is for small individual domestic and commercial wells.

The administration of water within the division is somewhat unique as compared to the typical East Slope situation of one river and tributaries with a basin river call. Since most of the streams tributary to the San Juan River do not combine with the flows of the San Juan until they cross the Colorado-New Mexico stateline, the division has several sub-basins to administer which include the San Juan River, Navajo River, Piedre River, Los Pinos River, Florida River, Animas River, La Plata River, Mancos River, McElmo Creek, Disappointment Creek, and the Dolores River. Each of these individual basins is administered as separate units and have special characteristics unique only to their particular situation. Consequently, the day-to-day regulation of diversions is based on each sub-basin's water supply and the "river call" for that particular basin. The administration is further complicated by the La Plata River

Compact, the Upper Colorado River Compact, the existence of two Indian reservations, and several U.S. Bureau of Reclamation projects.

The Navajo River and the Blanco River are primary supplies for deliveries of water to New Mexico through the U.S. Bureau of Reclamation's San Juan-Chama Project. This project allows New Mexico the right to divert up to 270,000 acre-feet on an annual basis and 1,350,000 on a ten-year average. The Project diverts water from the San Juan basin to the Rio Grande basin, and is used to provide to New Mexico a portion of their entitlement as set forth in the Upper Colorado River Compact.

The La Plata River Compact is one of the oldest interstate compacts in Colorado and sets forth delivery standards for the diversion of water on the La Plata River between the states of Colorado and New Mexico. It basically requires that one-half of the flows at the index station at Hesperus, Colorado, be delivered to New Mexico on a daily basis, up to 100 c.f.s. and beginning February 16th and ending November 30th of each year. This Compact was the subject of a United States Supreme Court case concerning the authority of state officials to enforce the requirements of a Compact against appropriators, and the Court upheld the actions of the administrative officials.

The Animas-La Plata Compact between the states of Colorado and New Mexico, although presently not requiring administration, will become effective once the Animas-La Plata Project is completed. This agreement allows for the storage and diversion of water in Colorado, with the same priority as Colorado users, for use in New Mexico.

The Bureau of Reclamation has several dams in the basin. They include Vallecito Reservoir, Lemon Reservoir, Jackson Gulch Reservoir, and McPhee Reservoir. Total storage in these reservoirs is 575,000 acre-feet, with McPhee Reservoir being the largest with a capacity of 380,000 acre-feet.

The 1986 Ute Indian Tribe's Water Rights Settlement probably is the most significant event to occur involving water users in the past several years. This settlement agreement resolved the long standing Indian water right claims which date from 1868 and are the most senior rights in the division. The agreement was reached after extensive negotiations between the State of Colorado, the Southern Ute Indian Tribe, the Ute Mountain Ute Indian Tribe, local water users, and the federal government. The settlement of water rights is staged to allow for resolving of claims on individual streams as development funds are appropriated, and various features of the Dolores and Animas-La Plata Projects are completed.

Presently, development funds, cost-sharing funds and construction appropriations for both projects are on schedule. However, as a result of the Endangered Species Act and a determination by the U.S. Fish and Wildlife Service that the Animas-La Plata Project would impact the Colorado River squawfish, there has been no construction start for the Animas-La Plata Project.

The Division 7 Water Court has special characteristics unlike the courts in other divisions. The Water Court Judge, Al Haas, acts as his own referee and relies upon the Division Engineer's consultation to prepare the referee's ruling. The water commissioners make a detailed field investigation for all cases filed with the court. They generally make the field inspection during their routine day-to-day activities. This information is then used by the Division Engineer in preparing his consultation to the water court. The consultation is mailed to the applicant and if there are no objections or concerns raised, the court then prepares a ruling utilizing the information, data, and conditions as set forth in the Division

Engineer's consultation. If a water court case is objected to it is automatically referred to the water judge and set for trial. Prior to the trial, the Division Engineer will schedule an informal meeting to obtain all the facts from all sides in the conflict before filing his consultation with the court. Quite often these meetings result in compromises between the parties and the cases are resolved without the need for a formal trial. This process has been successful in Division 7 and has been used since the establishment of the water courts in 1969.

Recently, the Division workload has been affected by geothermal water uses in Pagaosa Springs, the Ute Tribe Indian Water Rights Settlement Decree, instream flow conflicts below McPhee Reservoir and the San Juan-Chama Project, the 1990 drought cycle, the Endangered Species Act, as well as preparing the 1990 proposed abandonment list.

Division 7 is unique in many aspects but still shares common goals and responsibilities with the other water divisions in the state. We strive to meet the needs and concerns of the citizens in a timely and professional manner.

Editor's note: The above article is the eighth article in a series of nine articles regarding various water basins/divisions in Colorado. The final article which will appear in the Fall issue will relate to designated basins within Colorado.

GENERAL DEFINITIONS
REGARDING
COLORADO'S WATER
RIGHT SYSTEM
by Joseph Grantham

THE APPROPRIATION SYSTEM

The basic tenant of the Colorado appropriation system to be remembered is "first in time, first in right." An appropriation is made when an individual actually physically takes the water from a stream and transports it to another location for beneficial use. The first person to appropriate water and apply that water to a beneficial use has the first right to use that water within a particular stream system. The senior, or first appropriator must then be satisfied before any other junior rights are fulfilled.

PRIORITY DATE AND
POSTPONEMENT DOCTRINE

A priority date is established by the time (date) the water was first put to a beneficial use. However, in order to encourage adjudication of water rights, the postponement doctrine was established. Under the postponement doctrine the date of appropriation controls the relative priority among water right applications filed in the same year. A right filed in any year is junior to all rights filed in the previous year.

ABSOLUTE WATER RIGHTS

An absolute water right is water that has actually been

diverted and put to a beneficial use.

CONDITIONAL WATER RIGHTS

A conditional water right is a right to perfect a water right with a date certain priority upon the completion of the appropriation. Upon diligent completion of the project, the owner of that conditional right can then go to court and make a filing for an absolute water right, obtaining the appropriation date for which the conditional right was awarded. (Relation back).

In order to initiate an appropriation for a conditional right, the future user must show an intent to divert the water and put it to a beneficial use and demonstrate such intent in an open and physical manner. Field surveys are common acts of intent to appropriate. The physical act must be sufficient to put other parties on notice.

DUE DILIGENCE
REQUIREMENTS

The owner of a conditional water right is required to file, during the same month every 6 years, an application for a finding of reasonable diligence in the Water Court of the Division in which the water right exists, proving that he or she has been diligently pursuing completion of the project necessary to apply the water involved to a beneficial use. Should a person fail to show diligence in the courts, the right itself can be deemed abandoned.

CHANGE OF WATER RIGHT

A change in water right constitutes any change from what was the decreed and/or historic practice (although this should not be construed as to include a change in type of crops irrigated or different irrigation methods). A change in water right can occur regarding both absolute and conditional surface and ground water rights.

AUGMENTATION PLANS

A plan for augmentation is a means of increasing the water supply to allow the person diverting water out-of-priority a means or way to replace those out-of-priority depletions i.e. it allows an out-of-priority water right to continue to divert by providing replacement water for that diversion. Pooling of water resources, exchanges of water, substitute supplies of water, and/or the development of new supplies of water are all considered to be augmentation. However, eradication of plants that use water through a deep root system (phreatophytes i.e., cottonwoods, alfalfa, salt cedar) is specifically declared not to be a source of augmentation in Colorado. Also, making the ground impermeable and thereby increasing runoff but not the supply of water, is not included in the definition of a plan for augmentation.



CATHODIC PROTECTION HOLES

By Reiner Haubold

Cathodic protection holes and ground water protection have recently emerged as an environmental issue in southwestern Colorado. Cathodic protection is a method of preventing corrosion of steel structures installed underground, such as pipelines, well casing, storage tanks, pilings, etc. Corrosion prevention, therefore, is important for controlling the escape of hazardous fluids and the protection of aquifers.

In cathodic protection, positive electrical terminals called anodes, usually zinc blocks, are buried near the structure to be protected. They are connected to the structure with an electrical wire and the excavation is backfilled with a conductive material. Protection of the structure is achieved by imposing a direct current on the system.

Cathodic protection beds can be installed vertically or horizontally. Horizontal beds usually are shallow and do not pose a threat to the ground water. Vertical beds are installed in bore holes several hundred feet deep. These structures are also referred to as cathodic protection holes. With a depth of several hundred feet, these holes may penetrate through confining layers between aquifers. If not properly grouted, these holes may provide conduits for the migration of fluids, thus creating a potential for ground water contamination.

Cathodic protection holes are not defined as wells. A permit from the State Engineer is not required prior to their construction. However, they are bore holes subject to the Water Well Construction and Pump Installation Contractors Rules. Pursuant to those rules, cathodic protection holes penetrating through a confining layer separating aquifers require three days prior notice to the State Engineer's Office and must be constructed by a contractor licensed by the Board

of Examiners. Holes which do not penetrate through a confining layer do not require notice or construction by a licensed contractor. They must, however, be installed under the supervision of a professional engineer or professional geologist.

There are three areas of concern with cathodic protection holes:

- * the permeability of the backfill material and its effectiveness in sealing the bore hole;
- * the installation of vent pipes with perforations in more than one aquifer; and
- * the type of backfill material used and whether it is safe (non-toxic) for use in wells.

These concerns should be addressed by the contractor when installing cathodic protection holes. With planning and forethought cathodic protection holes can be designed to protect aquifers and ground water while preventing corrosion of underground structures.

COLORADO WATER ALMANAC

A revised version of the Colorado Environmental Coalition's Water Almanac is now available. First issued in 1984, this publication describes major water projects proposed for Colorado, including Animas-La Plata, Two Forks, and Eagle-Colorado.


Each project is described in detail with a narrative outlining the major features, current status, funding sources, sponsors, and government agencies involved. A map showing major project features is included, as well as a map showing the project's location in Colorado. The Almanac is available for \$5.00. Checks should be made out to CEC and mailed to The Colorado Environmental Coalition, 777 Grant St. Suite 606, Denver, CO 80203.

GOVERNOR APPOINTMENTS

Governor Romer recently made several reappointments to the Ground Water Commission and the Board of Examiners of Water Well Construction and Pump Installation Contractors.

On May 10, 1990, Dennis Montgomery and Steve Myers were reappointed to the Ground Water Commission for their second four-year term. Mr. Montgomery, a water attorney with the Denver law firm of Hill and Robbins, was appointed to represent municipal and industrial water users on the Commission and Mr. Meyers, a farmer near Center, represents agricultural interests from Division 3, the San Luis Valley.

Ken Rollin of Longmont was reappointed by Governor Romer on July 23, 1990, to the Board of Examiners of Water Well Construction and Pump Installation Contractors. This will also be Mr. Rollin's second four-year term. A professional engineer and president of the consulting firm of Rocky Mountain Consultants in Longmont, Mr. Rollin has served as chairman of the Board of Examiners for the past two years.




ENGINEERING AND MANAGEMENT CONFERENCE TO BE HELD FEBRUARY, 1991

The "Colorado Water Engineering and Management Conference" will be held in Denver, Colorado, for two days beginning on February 27, 1991. Organization is being coordinated by the Colorado Water Resources Research Institute located at Colorado State University and the Office of the State Engineer.

The Conference plans to utilize contributed and invited papers to evaluate technical and management methods necessary to solve current state water problems and policies. It will be of interest to water resource engineers and managers, public officials, agricultural and industrial water managers, and other citizens interested in the engineering and managerial aspects of water management.

Papers are currently being assembled for the program. Conference topics will include: water resources management and problem solving; conjunctive use; computing and telecommunications in water management; flood and stormwater management; urban water supply; drought planning; wastewater and water quality issues; groundwater management;

climatic issues; agricultural water management; state water policy; western water issues; regionalization of water management; water management technologies, and water conservation. For further information regarding this conference please contact Janet Lee Montera, Department of Civil Engineering, Colorado State University, Fort Collins, CO 80523, Telephone: (303) 491-7425, FAX: (303) 491-7727.



CHERRY CREEK MONITORING PROGRAM By Julie Kraus

The State Engineer's Office, in cooperation with the Arapahoe Water & Sanitation District, the Colorado Division of Parks and Outdoor Recreation, the City of Aurora, and the Denver Water Department, are soliciting participation for the Cherry Creek Basinwide Monitoring Program. The monitoring program is being coordinated to formulate a comprehensive management program and administrative tool for water resources in the basin. As many Cherry Creek water users are aware, the basin complexity is attributable to the transition of

administration, low streamflows, water quality concerns, well pumping, as well as complex augmentation plans and exchanges.

Cherry Creek water users are encouraged to participate in this study. Those interested in supporting this worthwhile effort should contact Dave Fox or Julie Kraus of the Division of Water Resources at 866-3581.

WILLIAM W. WHEELER DIES

William W. (Pete) Wheeler, a well known and respected consulting engineer, passed away on August 16, 1990, at the age of 78. Mr. Wheeler leaves behind a legacy of engineering excellence from a career which lasted over 50 years and extended to all aspects of water resources engineering throughout the state.

A Colorado native, Mr. Wheeler received his degree in Civil and Irrigating Engineering from Colorado State University in 1934. Mr. Wheeler's employment history contained many jobs including: work with Dan McQuaid, the Denver consultant noted for the Cherry Creek channelization project along Speer Boulevard; a water commissioner for the Arkansas River east of Pueblo; work with the U.S. Bureau of Reclamation in Oklahoma City and Monte Vista, and R. J. Tipton & Associates. In 1955, Mr. Wheeler established his own consulting firm (W. W. Wheeler and Associates, Inc.) and continued to expand his expertise related to water rights and engineering analysis.

Mr. Wheeler and his contributions to the engineering profession will be missed by his friends and colleagues. The State Engineer and the staff of the Division of Water Resources send their heartfelt condolences to his family.

WATER DIVISION NO. 4 OFFICE IN NEW LOCATION

The Division Engineer's Office located in Montrose has recently moved. The office is now located at 1540 East Niagara, Montrose, Colorado, 80401. The phone number for the office still remains: (303) 249-6622.

WATER FACTS

1. A person can live without food for more than a month. A person can only live without

water for about one week.

2. The average person uses 123 gallons of water per day.
3. The earth's surface is 80 percent water.
4. 2 percent of the world's water is frozen.
5. Only 1 percent of the earth's water is suitable for drinking.

(Source: Georgia Department of Natural Resources)

J. WILLIAM MCDONALD NEW
ASSISTANT COMMISSIONER FOR BUREAU OF
RECLAMATION

Bill McDonald was appointed as the Bureau of Reclamation's Assistant Commissioner for Resources Management on August 2, 1990. Mr. McDonald left the Colorado Water Conservation Board to assume his new duties, where he had been the Director since 1979.

Mr. McDonald's new position will be charged with planning and developing innovative,

environmentally sound approaches to managing water, land, and power-generating resources in the western United States. He will also be in charge of technical experts who provide all Reclamation offices with information in the earth sciences, engineering, analysis, ecological resources, and other support services.

The Division of Water Resources wishes him well in his new endeavors.

CALENDAR OF EVENTS

Sept. 17-20, 1990 2nd Annual Conference of the Canadian Dam Safety Association, Toronto, Ontario. Contact: Barry Hurndall, CDSA. (403) 422-1359.

Sept. 25-27, 1990 63rd Annual Meeting of the Association of Western State Engineers, Steamboat Springs, CO. Contact: Paula Lacey, DWR. (303) 866-3581.

Sept. 27-28, 1990 Colorado Water Congress Annual Water Law Seminar, 1390 Logan Street, Suite 312, Denver, CO. Contact: Karen Reutiman, CWC. (303) 837-0812.

Oct. 2, 1990 Board of Examiners of Water Well Construction and Pump Installation Contractors, Room 821, 1313 Sherman Street, Denver, CO. Contact: Rolynda Bain, DWR. (303) 866-3581.

Oct. 4-5, 1990 Climatology and Flood Hydrology in the Rocky Mountains Workshop, Sheraton Hotel, Denver Federal Center, Denver, CO. Sponsored by FEMA, USGS, and AWSE-Colorado. Contact: Douglas Laiho. (303) 452-3600.

Oct. 6, 1990 "Colorado Water: The Next 100 Years" - Division 7 Session, Fort Lewis College, Durango, CO. Contact: Barbara Preskorn. (303) 466-8811, ext. 434.

Oct. 14-18, 1990 Association of State Dam Safety Officials 7th Annual Conference, New Orleans, LA. Contact: Lori Spragens, ASDSO, Lexington, KY. (606) 257-5140.

Oct. 27, 1990 "Colorado Water: The Next 100 Years" - Division 4 Session, Montrose, CO. Contact: Barbara Preskorn. (303) 466-8811, ext. 434.

CALENDAR OF EVENTS CONT.

Nov. 4-9, 1990 25th Annual American Water Resources Association National Conference & Symposium, The Hyatt, Denver, CO. Contact: John George (303) 236-5922 or Rich Herbert (303) 236-5928.

Nov. 9, 1990 Colorado Ground Water Commission, 200 East 14th Avenue, Denver, CO. Contact: Rolynda Bain, DWR. (303) 866-3581.

Nov. 10, 1990 "Colorado Water: The Next 100 Years" - Division 6 Session, Steamboat Springs, CO. Contact: Barbara Preskorn. (303) 466-8811, ext. 434.

Nov. 14-16, 1990 100th Quarterly Meeting of the Western States Water Council, Denver, CO. Contact: Craig Bell, WSWC. (801) 561-5300.

Nov. 26-27, 1990 Colorado Water Conservation Board, Denver, Colorado. Contact: Maria Martel, CWCB. (303) 866-3441

Dec. 4, 1990 Board of Examiners of Water Well Construction and Pump Installation Contractors, Room 821, 1313 Sherman Street, Denver, CO. Contact: Rolynda Bain, DWR. (303) 866-3581.

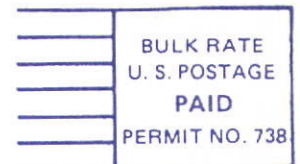
Dec. 5-7, 1990 47th Annual Meeting of the Colorado River Water Users Association, Las Vegas, Nevada. Contact: Tommy Thomson, President, CRWUA. (719) 544-2040.

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